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REMARKS

Prior to this amendment, claims 1-5, 7-16, and 19-23 were pending. All previously pending claims were rejected in the September 3, 2002 Office Action. By this amendment, *inter alia*, claims 21 and 23 are canceled and claims 24 and 25 are added. Thus, after entry of the present amendment, claims 1-5, 7-16, 19, 20, 22, 24, and 25 are pending.

Technical Matters35 U.S.C. §112 ¶1

Claims 1-5, 7-16, 19, and 20 stand rejected for inclusion of the language "said body is substantially formed of a material possessing a tensile strength of at least 10MPa when said material is at the temperature of 100°C." The present amendments moot this limitation and the previously-cited Fay reference, and this limitation is therefore deleted as unnecessary. It is noted that the Applicant does not by virtue of this amendment admit or agree that there is insufficient basis for such a limitation inherent in the originally-filed specification.

Similarly, the pressure-based limitation of claims 13, 16 and 22 is moot in light of the present amendments, and is therefore deleted as unnecessary. Again, however, Applicant does not admit or agree that there is insufficient basis for such a limitation inherent in the originally-filed specification.

35 U.S.C. §112 ¶2

Claim 5 stands rejected for its inclusion of a trademark. The claim has therefore been amended to delete the trademark. It is noted, however, that the other claims should not be construed by virtue of this amendment to exclude AMPHENOL®-compatible connectors from their scope, and to the contrary, should be construed to include them pursuant to the doctrine of claim differentiation.

Obviousness Rejections - Refouvelet + Taylor or Craig

All claims stand rejected as obvious primarily over U.S. Patent No. 5,576,509 to Refouvelet et al.

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("Refouvelet") in combination with either of U.S. Patent No. 2,741,179 to Taylor et al. ("Taylor") or U.S. Patent No. 3,906,858 to Craig et al. ("Craig"). All pending claims except for claims 21 and 22 stand rejected based on the foregoing combination further combined with one or more of three other references. These rejections are traversed based on the present amendment limiting the claims to an automotive pyrotechnic initiator and to an overmolded body that provides structural support and installation orientation features,¹ and arguments concerning the insufficiency and/or impropriety of combining Refouvelet with either Taylor or Craig in the context of an automotive pyrotechnic initiator.

In summary, neither those references, nor any of the other cited references, whether taken singly or in any combination, disclose or suggest an automotive pyrotechnic initiator having a molded, integral, unitary, electrically non-conductive overmolded body connected to and surrounding substantially of the initiator and providing structural support and installation orientation features, as is now recited, *inter alia*, in pending claims 1-5, 7-16, 19, and 20. The present invention discloses a novel and useful automotive pyrotechnic initiator having a molded, integral, unitary, electrically non-conductive overmolded body, which as disclosed can now be achieved in a single-step process. Thus, the installation features of the automotive initiator body, and electrical insulation for the automotive initiator, can now be efficiently provided in a single part and a single corresponding manufacturing step. To Applicant's knowledge, prior to the present invention, it was neither known nor expected that such a solution could be practically obtained for an automotive initiator.

Refouvelet

As the Examiner notes at page 4 of the Office Action, "Refouvelet et al do not disclose, in Fig. 1, the

¹ Support is found for these limitations in the originally-filed specification, for example at page 4, line 22 to page 5, line 4, and the Figure, which describe and depict a preferred body that provides structural support and installation orientation (guiding) features including biconical region 57 and end portion 58.

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electrically non-conductive overmolded body surrounding substantially all of the initiator subassembly." This, however, is the crux of the present invention.²

Taylor or Craig

With regard to this critical aspect not found in Refouvelet or any other known applicable reference (namely, the body surrounding substantially all of the initiator except for the connector), the Examiner then states that "[b]oth Taylor et al and Craig et al teach that it is old and well known in the art to substantially surround all of an initiator except for an exposed portion of a connector end with an electrically-nonconductive overmolded body surrounding substantially all of the initiator subassembly to form a protective casing. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the overmolded [sic, molded] body 10 surround substantially all of the initiator subassembly of the Refouvelet et al initiator to form a protective casing, as taught by either Taylor et al or Craig et al." [Office Action, page 4].

That assertion, however, is respectfully traversed. Craig is clearly inapposite as it does not teach an initiator with an electrically non-conductive member of any kind surrounding substantially all of an initiator. To the contrary, Craig appears to teach an initiator having an electrically insulative rectangular plate 22 that bifurcates the initiator into two symmetric halves, with the symmetric surrounding half-cylinder portions 16a and 16b, and top portions 48a and 48b, being *conductive* rather

² It is noted that the "endplate" discussed in the portion of the Refouvelet abstract referenced by the Examiner is actually just the eyelet or header, and should not be misconstrued as teaching or suggesting that a molding could extend around the top end portion of the initiator. To the contrary, in Fig. 1, the molding stops conventionally near the middle of the initiator, and in Fig. 2, a separate pre-formed portion is attached - not molded - onto the top end above the molded body. Thus, in terms of the prior art it presents to the present application, the Refouvelet disclosure simply represents a standard, conventional initiator with a molded body that is not overmolded.

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than non-conductive. Consequently, no integral, unitary electrically non-conductive, overmolded body extends around substantially all of this initiator.

Likewise, Taylor is also inapposite to the presently pending claims. Taylor teaches a detonator having a rubberlike coating 13. First, there appears no teaching or suggestion that this coating is molded. Second, the rubberlike coating of Taylor does not provide structural support or any installation orientation features.

Third, the detonator disclosed by Taylor is completely inapposite to an automotive initiator such as is now recited in the pending claims. Indeed, attempting to apply the rubberlike coating of Taylor to an automotive initiator would not result in a useful device, and would not advance any knowledge of how to extend a conventionally molded body of an automotive initiator (such as that of Refouvelet) fully around the initiator as in the present invention. Indeed, it is the teaching of the present application (in particular, page 2, line 24 to page 4, line 10) that provides this novel and useful advance, and a solution that has heretofore not been conceived.

Further, for those same reasons, there would have been no motivation for one of ordinary skill in the art at the time of the invention to attempt to apply the rubberlike coating of the detonator taught by Taylor to any automotive initiator such as that taught by Refouvelet. Because the construction and manufacturing techniques relevant to the Taylor detonator are so dissimilar to those of automotive initiators (e.g., the detonator has a matchhead rather than an initiator charge that is directly hermetically enclosed by a can, the detonator simply has wire leads at its end rather than a highly defined connector end, the detonator's rubberlike coating does not provide any support or engagement feature, etc.), one of ordinary skill in the art away would have been directly discouraged from any such attempt as it would have been useless.

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Conclusion

For the foregoing reasons, it is respectfully requested that the presently amended application be allowed. The Examiner is invited to contact the undersigned by telephone if desired.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claims 6, 17, 18, 21 and 23 are canceled.

Claims 1, 5, 8, 13, 16, and 22 are amended as follows:

1. (Twice amended) An automotive pyrotechnic initiator, comprising:

- c) an initiator subassembly including a can loaded with a pyrotechnic charge, and a header assembly having a connector end; and,
- d) a molded, integral, unitary electrically-nonconductive overmolded body connected to and surrounding substantially all of said initiator subassembly except for an exposed portion of said connector end, wherein said body provides structural support and installation orientation features [is substantially formed of a material possessing a tensile strength of at least 10 MPa when said material is at the temperature of 100°C].

5. (Twice amended) The initiator of claim 4, wherein said body and said electrode pins together form a [n AMPHENOL®-compatible or] serviceable or non-serviceable integral automotive airbag initiator connector.

8. (Twice amended) A method for making an automotive pyrotechnic initiator having an overmolded body, comprising the steps of:

- c) providing an initiator subassembly including a can loaded with a pyrotechnic charge, and a header assembly having a connector end; and,
- d) molding an integral, unitary, electrically-nonconductive, overmolded body around said subassembly, such that said body is connected to and surrounds substantially all of said initiator subassembly except for an exposed portion of said connector end, wherein said body provides structural support and installation orientation features [is substantially formed of a material possessing a tensile strength of at least 10 MPa when said material is at the temperature of 100°C].

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13. (Twice amended) The method of claim 12, wherein said step of molding includes injecting molten material into said mold under [a] pressure [of at least 1000 psi].

16. (Twice amended) The method of claim 15, wherein said step of molding includes injecting molten material into said mold under [a] pressure [of at least 1000 psi].

22. (Amended) An automotive pyrotechnic initiator, comprising:

c) an initiator subassembly including a can loaded with a pyrotechnic charge, and a header assembly having a connector end; and,

d) a molded, integral, unitary electrically-nonconductive overmolded body connected to and surrounding substantially all of said initiator subassembly except for an exposed portion of said connector end[,

wherein said initiator is an automotive airbag initiator].